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THE PLACE OF FORESTRY

IN THE SOUTH ROCKY MOUNTAIN REGION

A JOINT REPORT

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WHAT IS THE PLACE OF FORESTRY IN THE

SOUTH ROCKY MOUNTAIN REGION?

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(Comprised of Colorado, Wyoming, Utah, Nevada, Arizona, New Mexico, and western portion of South Dakota and Nebraska.)

The best way to answer the question as to the place of forestry in the South Rocky Mountain Region is to take a trip through the area. This trip will take us completely around the height of land extending from the Yellowstone Park southward to the Mexican border, through Colorado, Wyoming, Utah, Nevada, Arizona, and New Mexico. Within that area are the headwaters of all the great rivers of the West.

Let us start northward from Denver and make a great circle, and we will see the Platte rivers, the Powder, Bighorn, Yellowstone, Snake, Bear, Weber, Ogden, Humboldt, Green, Colorado, Gila, Rio Grande, Cimarron, and Arkansas. The water from these rivers and their tributaries transforms the deserts into gardens where millions of people make their homes and where thousands of farmers raise crops secure from drought.

Around this circle are nearly all the great reservoirs and irrigation projects of the West, the Pathfinder, Jackson, American Falls, Pine View, Echo, Boulder, Roosevelt, Coolidge, Elephant Butte, Conchas, and others, built at great public and private expense to store the flow of the streams and make the water seasonably more useful.

Upon the slopes of the mountains and foothills are billions of feet of timber from which is built the home of the farmer, his fences, and his barns. Fuel by the thousands of cords comes each year from these forests. From them also the railroads secure their ties, and the mines their props and stulls. There is some left over for export to less favored regions.

Also upon these slopes and the adjacent plateaus, often intermingled with the timber, are the ranges for the millions of cattle and sheep which

form the backbone of the great livestock industry of the West.

To the shade of its forests, to its canyons, to the rivers and brooks, to the lakes and the mountains of this region, come the weary, the sick, the vacationist, and the sportsman, each seeking and finding that which he needs and wants - rest, health or pleasure.

This vast area is the home of game animals, birds, and fish which furnish pleasure to the nature lover and enjoyment to the sportsman, whether he be country boy or city millionaire.

It has produced hundreds of millions of dollars in mineral wealth and its still hidden mineral resources continue to challenge the prospector and the miner.

Our route followed historic trails discovered by early explorers and trappers, the trails later used by the pioneers in their conquest of the West. It even crossed and recrossed the four-hundred-year-old trail of Coronada. We made a circle trip around the highest land area in the United States. We have seen the homeland of over three million people, a productive land because of the many natural resources within its confines.

But where does forestry come into the picture and what part does it play in the economy of the area? Our answer: To aid in the protection, development, and administration of this vast storehouse of intermingled resources for the welfare and happiness of mankind now and in the future.

More specifically the forested lands within this area produce 80 percent of the water without which the domestic supply for communities, towns, and cities would not be available, and farm crop production on 176,000 farms would not be possible. These forested lands produce all the

timber for local use, which otherwise would have to be imported at greater cost, and produce as well a surplus for export.

They also produce seasonably important forage for millions of head of domestic stock. Without forests wildlife would be deprived of its natural habitat, and citizens from far and near would not have an opportunity to secure that outdoor recreation so essential to enable them to battle the complexities of our modern civilization. These lands and their varied products are of vital importance in the social and political economy of a major portion of the West, and have, in addition, international features in connection with water usage in Mexico.

The improvement and management of these forested lands, a large share of which are in public ownership, and the wise use and sustained production of their resources is a national problem, a national responsibility.

These lands have in the past produced vast amounts of varied natural resources of inestimable value, the production and use of which permitted the establishment of the present civilization within its borders. These resources during the past have largely been considered as God-given and inexhaustible. Entirely too little consideration was given to the need to make them available for future generations if the civilization within the area was to be maintained.

The problem before the nation is how best to manage these lands, maintain the productivity of their soils and the resources produced therefrom, all in order to sustain on a sound social basis the present population and that which will come in the future.

Can these high altitude and rough mountainous lands actually be managed to yield continuous benefits?

The answer is in the affirmative and is based on a third of a century of experience in land and resource management by the Federal Government on the National Forests.

Cooperatively wherever possible, but by direct action when action in the public interest was believed to be advisable, the Forest Service of the Department of Agriculture has accomplished in a reasonably acceptable way the redemption of national responsibilities in the administration of the forests. This example of land and resource management points the way of the future for the Federal Government and the respective States.

I. Major Forest Problems in the South Rocky Mountain Region.

Nature provided, and man found and used the forest land and its products to build an empire in the South Rocky Mountain Region. These were ample in amount for pioneer conditions but are becoming short under increasing population demands. This situation requires positive action to aid and assist nature in providing for the essential needs of future generations. The forested area from the foothills to the tops of the mountains represents a composite resource comprising water, timber, livestock and game range and outdoor recreation. All of these contribute, if managed on a continuous basis, to the economic and social welfare of the local population and those in adjoining states and in part to Mexico.

The problem is to secure on this area a unified and coordinated management dedicated to the production of crops, benefits and influences equitably distributed for the maintenance of a prosperous people. These

problems of management concern all values accruing from the land, without sacrifice of one resource at the expense of another. The conservation of water is the major management problem since over 80% of the total supply originates in the forested zone. The amount and usability of this water depends on the maintenance of the natural vegetative cover. This cover in turn protects the soil. The soil is the basic resource and if it should be destroyed, civilization in the South Rocky Mountain Region would fail.

The problem of management is:

A. To regulate the use of grass and timber cover on all watersheds, maintaining them at a density that will protect the soil and regulate the flow of streams.

B. Various sections and areas of forested and intermingled open lands have in the past been reduced as to cover to the point where they are not functioning properly. The problem is to place such lands under management and bring back their cover in adequate amounts. Since the coming of man to the South Rocky Mountain Region, the forest has supplied fuel for heating and cooking, material for building homes, and as business activities increased, material for industrial use. The area of forest, while limited, is adequate, if properly managed, to continue to supply all the forest products needed locally and provide a considerable surplus to adjacent non-timbered states and distant markets. This nearby and adequate timber supply has contributed materially to the building of the West. Nature-grown stands stored on the stump awaiting their call to service have supplied past needs.

However, this stored supply, in some portions of the region, is now becoming inadequate since the original stand was cut at a rate faster than it has been replaced by new growth. In some cases no provision whatsoever was made during the first harvest to provide for future crops. The major problems are:

1. To prevent further destructive harvesting methods on privately owned commercial timber producing lands and to initiate a system of cutting that will leave these lands fully productive in the future.

2. To place the lands destructively cut in the past under a form of management which will bring them back into productive condition.

3. To keep all timber lands producing timber and to make this timber available to all of the population, in ways which will advance the general welfare.

The forested and intermingled open lands, since pioneer days, have been the grazing grounds for millions of head of domestic livestock. The forage supply of grasses, weeds, and browse is an annual crop that can only be harvested by grazing animals. The regulation of the use of the forage crop, while adequately protecting soils, watersheds, and timber, has presented many problems yet to be solved, among the most important of which are:

1. Demand exceeding existing supply.

2. How best to maintain productive ranges and watersheds and make the forage resources available to thousands of farmers and stockmen in the region.

3. The initiation of management on lands that have been over-used in the past. These are now not only failing to yield forage and other resources but constitute a menace to other values. Such ranges should be put into productive condition as quickly as possible.

4. To coordinate the grazing use of forested lands in the several ownerships, both public and private, to the end that it will meet best the social and economic needs of the local population.

5. To assist that portion of the population now on submarginal land in moving to locations where they can become producing and independent elements in the population.

The South Rocky Mountain Region provides and is called upon to supply opportunities for rest, recreation, and inspiration to literally millions of people, not only local but those from adjoining non-forested states. This use which has increased rapidly during the past ten years, is expected to continue to do so in the future. More leisure time, improvement in roads and cars are contributing to this increase. This has brought forth a whole line of new industries catering to the needs of recreationists. It has brought with it problems:

1. To so plan the use of land that there may be secured the maximum of recreational value with the minimum of interference with the "Bread and Butter" uses necessary for a working population.

2. How best to manage intensively used areas without destroying the beauty and resources which make such areas attractive.

3. To safeguard the public interests in simple, wholesome and inexpensive forms of recreation.

4. To adequately finance the needed improvements and to provide the needed personnel to care for the increasing use.

The forested lands of the Region, because of their wide range in latitude and altitude, are the home of a large number of wildlife species. Game has been used by man for centuries for food, as articles of commerce, and for sport. Found abundantly when the white man first arrived, wildlife decreased rapidly under unregulated kills until some species were reduced to insignificant numbers. Game needs food and shelter, diversified to meet seasonal conditions. Man's exploitation of the land and its products has largely crowded many species from their natural winter habitat. Unregulated hunting and competition for food have further disrupted conditions. The demand from sportsmen for hunting has increased. All in all, the delicate balances have been disturbed, bringing the following problems:

1. How to provide game animals and birds with needed and essential winter grazing grounds.

2. How to bring back the species of game and birds, which have been reduced in numbers through over-use to the point where their existence is threatened.

3. How best to manage the land and its resources to provide a satisfactory habitat for game animals, birds, and fish, and to regulate the numbers in keeping with the available food supply.

The management of the forested lands, the growing, harvesting, transporting, and merchandising of its products furnishes employment for a major portion of the population of the region.

Much of the land, however, is under-managed, and there are large opportunities for improvement of both the land and the resources thereon. Such work consists of the construction of roads and trails, the improvement of the timber resources through thinning of crowded stands, the removal of insect-infested, diseased and worthless tress, the reforestation of potential timber-producing lands not now timbered, the revegetation of depleted range lands, the rehabilitation and protection of watersheds, and the improvement of ranges and facilities for handling stock.

This work constitutes a large reservoir for employment which would tend to smooth out the labor curve while placing the forested lands in a more productive and usable condition. The problem, however, is (1) to secure unified management plans for the lands and (2) to finance a work program so organized that it will provide for the employment of labor, seasonally or otherwise, in accordance with economic conditions.

II. Major Objective.

The limited area of forested lands above 5,000 feet has in the past produced products on which was built a civilization. If this is to be maintained, these products must continue to be made available in the future. This can be done only through coordinated and technically sound management, based on a knowledge of relative values, consistently carried out. The overall objectives of this management are:

1. The maintenance of the productive power of the soil, and its use to grow the maximum amounts of quality products natural to the area.

2. The harvesting of these crops of timber by man and of the forage by livestock and game in ways that will maintain a cover adequate

to provide for natural crop regeneration, prevent soil losses, and regulate streamflow.

3. The distribution of the crops in ways which will best promote the social and economic stability of the population dependent upon these crops.

4. The stabilization of employment of labor in growing, improving, and harvesting the crops grown, transporting and merchandising the products.

5. The maintenance of the land and resources in condition to meet the demands for simple forms of recreation by large elements of the population.

III. Major Solutions.

The facts on the ground and the history of past use clearly indicate that the management of this great aggregation of rough lands of varied character is a public responsibility.

Uncoordinated single use management by unrelated ownerships has not produced the maximum composite values from the lands. It is resulting in diminishing returns, with measurable losses in capital soil resources and is creating some definite public liabilities.

The multiple use principle of management as practiced by the Forest Service on the national forests for over 30 years has been definitely proven to be a satisfactory method of long-time management for lands of diverse character. In essence this is merely the use of each land area for its highest purpose or combination of purposes but always governed by the dictates of permanent public benefit. This principle which fully appraises local, regional, and national benefits, such as are involved in interstate waters, in flood control, and erosion problems, in timber, range

and crop production, in stabilizing communities and in furnishing sustained employment, can only be exercised by a public agency. It is wholly beyond the power of private owners and wholly impossible under uncoordinated public effort.

The only satisfactory permanent answer to management of these rough lands is a multiple use type of management along the lines developed and proven by the Forest Service.

The national forests are already in existence, and already control a substantial proportion of the land areas in question. Administration has been set up, personnel has been trained, policies worked out, so that the public machinery is available for the larger task of handling all the public lands in the forest areas.

The first desirable step is the extension, where need be, of certain national forest boundaries so as to include such areas as are necessary to make logical and complete units of management.

There is also ample room and definite opportunity for other federal agencies such as the Grazing Division and for State authorities to set up public units of land management for those areas which, for one reason or another, do not lend themselves well to administration as part of the national forests.

The next step is public recognition of the fact that many areas of privately owned lands within the Region cannot be profitably held and managed by their owners without some sacrifice of public values. Ultimate recapture by the public of such lands through an orderly program of sustained purchase and at reasonable prices is indicated. This does not mean

the extinguishment of private rights nor the subversion of private initiative. It is merely the public acquisition of only those farm, range, and timber lands which are now, or which threaten to become, problems to their owners and to the public.

All abandoned or depleted lands returned to public ownership should be restored as rapidly as possible to full production. Reseeding, reforestation, water and flood control on such lands will not only reclaim the land resource, but in so doing will furnish much employment to local labor. The timber, range, and farm lands now in private hands, and not constituting an economic burden should remain in such ownership and efforts made to make more of their owners self-sustaining through better silvicultural and agricultural practices and through supplemental employment on the public lands. To accomplish this, regulatory legislation is necessary, requiring selective cutting of timber and other silvicultural and range practices adequate for the purpose.

The entire long range management of the multiple use public forest lands should be predicated upon production of maximum crops of timber and forage, maximum yields of usable water, full social benefits from the recreation resources, stabilization of local communities, and maximum employment to permanent populations.

Such public lands handled upon the broad basis of permanent human good, utilizing without destruction all resources to their full capacity, and returning a fair share of receipts to local political subdivisions in lieu of taxes, will in the long run prove of inestimable worth to the nation.

Happy homes, contented people, thriving communities and natural resources that are steadily increasing in value, are assured rewards for such intelligent and far-seeing planning.

Legend
Elevation and drainage map
for
South Rocky Mountain Region
Forestry Report
1938

PRIVATE FOREST LANDS OF THE SOUTH ROCKY MOUNTAIN REGION

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(Comprised of Colorado, Wyoming, Utah, Nevada, Arizona, New Mexico, and west portion of South Dakota and Nebraska.)

Private forest lands in the South Rocky Mountain Region total over 8,000,000 acres. This is over 25 percent of the entire forested area in the Region. These lands are largely intermingled with or adjoining the National Forests.

Size of individual tracts runs as high as 100,000 acres each, and in a few cases even higher. On the other hand, small tracts of private timberland are scattered throughout the National Forests, and in Colorado and Utah in particular there are belts of private timber interspersed with public lands encompassing the National Forests. Included also in the 8,000,000 acres are relatively small but economically important areas of juniper and pinon.

The private timberlands form component parts of the forest and topographic units. Acre for acre they are as valuable for timber production as are the National Forest lands of similar character already set aside for that purpose. These lands are so situated with reference to national watersheds that their protection and proper use is of critical and vital importance to conditions of water flow and water supply for irrigation projects and municipalities located below them not only in the States of origin but in adjoining States. Private forest lands also have values as hunting grounds, for fishing, and other forms of recreation. Their use for grazing of livestock is an important factor both as affecting their watershed and timber producing values and as a means of livelihood for dependent peoples and communities.

While certain areas of timberland in Colorado, Wyoming, and South Dakota are operated on a permanent sustained-yield and undoubtedly sound

economic basis in connection with other established industries, private forestry in the Region as a whole cannot be made to pay over a long period of time due primarily to slow growth and the long periods between cuts with carrying charges and risks involved. Private timber owners, therefore, are interested in the liquidation of their investment by removal of virgin stands, and only in exceptional cases are they interested in other public values or in leaving the land in a productive condition. Frequently this means removal of all the merchantable timber to be followed by a second cut in the same rotation period, taking out all small material usable for ties and props. Only in the few exceptional cases in Colorado, Wyoming, and South Dakota and under voluntary agreements where removal of the timber is supervised by the Forest Service are private timberlands left in desirable silvicultural condition, and this almost always with a view to disposition of the residual values in the cut-over land to the Federal Government.

In the timber type, due to low carrying capacity, supplemental income from grazing use is not sufficient to meet carrying charges and tie over the long period between timber crops. However, range lands in the woodland type and small tracts of timberland interspersed with public lands and strategically located with reference to control of watering places and public range can be made to pay under proper utilization for livestock purposes.

The trend is away from private ownership of timberland, except for the areas in Colorado used by industrial corporations in connection with their own activities, and except as to small tracts having key values in connection with range use. Meantime, the removal of the merchantable timber is followed either by practical abandonment and tax delinquency, or frequently by over-

grazing in an effort to meet carrying charges and secure immediate returns. Such overgrazing frequently extends to the depletion of the forage and timber resources and devastation of the basic soils.

Forestry has a place on every farm and ranch in Colorado and Wyoming, even those out on the plains, and to a lesser extent in Utah and Nevada. Timber production as a phase of agriculture may be limited by soil and moisture -- as it is in this Region -- and the need of crop protection through the planting of trees may vary in different situations, but trees are uniformly an essential feature of human abode, and this fact calls for a definite service of forestry to farming and ranching.

Farm woodlots, as a matter of fact, are of limited importance throughout the Region. They are restricted to narrow groves and clumps of cottonwood along stream bottoms, the aggregate area not exceeding 250,000 acres. There is some commercial demand for timber of this species but its chief value is for use as fuel. In the mountains many ranches include timbered areas, both aspen and fringes of conifer. In many instances - although by no means in all - the highest use of the land is for livestock range. There is some opportunity for the sale of stumpage to established sawmills, some is cut for fuel, and in Colorado and Wyoming 30,000 to 40,000 Christmas trees are produced each year. Christmas tree production, however, offers the principal opportunity in those States for a cash crop from such timbered lands, and, therefore, the principal opportunity for management. Provision is needed for a more complete farm forestry extension program through Federal

and State cooperation that will help farmers and ranchers to maintain better standards of forestry and better serve themselves through Christmas tree production.

Shelterbelt planting in eastern Colorado was started under the sponsorship of the State Forester in 1915. With the passage of the Clarke-McNary law in 1924 this work was somewhat expanded through Federal cooperation. However, it is estimated that only 5 percent of the farms in the plains part of the State are adequately provided with shelterbelts. In Wyoming, Utah, and Nevada tree distribution to farmers was first undertaken after the passage of the Clarke-McNary law. These States employ part time Extension Foresters. In Colorado, Wyoming, and New Mexico the Department of Agriculture is carrying on investigations concerning shelterbelt planting through the Bureau of Plant Industry.

The number of trees distributed today under the Clarke-McNary program is not large enough. It should be expanded to provide for 750,000 trees in Colorado, 600,000 trees in Wyoming, and 250,000 in Utah and Nevada each year. But there is another and more fundamental need. Conditions are particularly difficult in eastern Colorado and Wyoming, and successful planting by farmers requires more assistance and advice such as can be made available by more thorough State Extension programs in tree planting. The two States show a keen interest in such work but are not equipped to make as much of it as they should. An expanded Clarke-McNary program or some form of comprehensive farm-forestry legislation is needed.

No cooperative distribution of planting stock in Arizona and New Mexico is now being done under the Clarke-McNary law.

Major Objectives and Problems

A. Objectives and Ultimate Goals.

1. Private forest lands must be recognized by private and public agencies in their true light as contributing their share of the important resource elements, including timber, forage, water, recreation, and wildlife necessary in the social and economic scheme of the Region.
2. That kind of management for private forest lands must be provided which will assure perpetuation of their inherent natural resources.
3. Where private endeavor has failed to redeem its managerial responsibility in the public interest, provide ways and means for public agencies to assume the job.
4. Return to satisfactory sustained productiveness those private forest lands which, through exploitation and misuse, have become a liability rather than a social and economic asset in the Region.
5. By prompt action in solving the private forest land problem in critical cases, arrest pyramiding deterioration and reduce huge public expenses that eventually and inevitably will be required for rehabilitation.
6. Through ownership adjustments or better forestry and range practices, seek to stabilize industry and provide greater social security to dependent communities.

7. Maintain the private forests through proper management or ownership adjustments so as to serve as important work reservoirs.

B. Problems

An analysis of the problems related to private ownership of forest land requires recognition of the principle that certain uses and products of the forest are sufficiently far-reaching in their effects to be matters of public importance, regardless of the immediate ownership of the land. The forests of the South Rocky Mountain Region are the source of waters that flow into all of the five major drainage systems west of the Appalachian Mountains, except one. The condition of these forests and these forest-land resources is directly reflected in the availability and distribution of their run-off water. Other uses of these forests are similarly of public importance. These forests are capable of furnishing almost unlimited opportunities for outdoor recreation, and they are needed for this purpose by millions of people in the United States, especially by those living in the Great Plains immediately to the east. But for this purpose strategic areas, at least, must be maintained in an attractive condition.

Forest land in this Region does not ordinarily produce timber values sufficient to meet the requirements of private enterprise for profit, if such land is handled with proper regard for the preservation of timber growing-stock and land. Certain exceptions, to be sure, should be noted, as the situation in which the owner and operator, an industrial corporation, is both producer and consumer, providing a controlled and stabilized market for its own products. Also in unusual instances timber values are supplemented

by other values such as livestock range in such a way as to enable them to meet the requirements of private investment. This is particularly true of relatively small tracts that may be inseparably associated with mountain ranches. These exceptions, however, do not account for a very large acreage. On the whole, the land is of low productive capacity and timber growth is slow, which means that the periods between yields are long and that the yields themselves are not large. The result is that in private ownership immediate financial returns must be sought through over-exploitation, resulting in the liquidation of forest growing-stock and the depletion of soil. Such land is left in a nonproductive condition as regards both timber and range. It follows that protection against fire and insects is often lacking, or left to public agencies that are forced to provide it as a means of safeguarding public interests.

Private forest ownership and operation of forest lands in the South Rocky Mountain Region are not economically sound because such lands in private ownership fail to meet public requirements for:

1. Water. The run-off from forest land that is inadequately protected, overgrazed, and destructively logged is erratic in seasonal distribution and the water is liable to carry a burden of silt and produce a flood hazard.

2. Public revenue. Although there are important instances of over-taxation of certain industrial forest lands -- even to the point of making private forestry impracticable -- there is an overwhelming number of cases in which such lands do not meet public requirements for revenue. Tax delinquency records provide convincing evidence of this. Of 115,000 acres

recently added to one National Forest by boundary adjustment, a total of 40,000 acres was tax delinquent.

3. Outdoor recreation. Land that can meet the requirements of private enterprise for profit only through over-exploitation is not left in a condition suitable for outdoor recreation.

4. Social standards. In private ownership the forest land of this region is comparable to the submarginal farm. It is not able to support stabilized employment and stabilized communities.

The exceptions noted above point to continued private ownership of a small proportion of the forest land in the South Rocky Mountain Region. Such ownership is desirable, but involves problems of cooperation from public agencies engaged in forestry and such regulation as will protect the public interest in such lands.

Major Solutions

A. Cooperation

1. By means of extension activities on the part of State and Federal agencies lay the basis for better forest land management through (1) Improved silvicultural practices.

(2) Regulated grazing.

(3) Equitable taxation of forest lands.

2. Extend cooperative Federal fire control activities under the Clarke-McNary law to aid states, counties, and private land owners who are now not organized or cannot qualify for this cooperation.

3. Governmental subsidy (Federal, State, County), for better forest land management by:

(1) Application of principles developed under AAA farm program (benefit payments).

(2) Compensation to forest land owners for good management in the form of tax reductions, local and Federal.

4. Because of the interstate nature of forest influences, the Federal Government should provide the leadership necessary for improving the private forest land situation in the Region. This should be done by:

(1) Designating the Forest Service as the proper agency to do the job and work out detailed solutions.

(2) Broadening the Federal legislative authority necessary to properly handle the cooperative aspects of the problems.

B. Regulation

1. Legislation, with necessary enforcement machinery, in each of the regional states needing such measures should be encouraged to provide:

(1) Selective cutting of stands to provide for natural reforestation of cut-over lands.

(2) Slash disposal on cut-over lands.

(3) Police powers to States to prevent destructive practices, such as broadcast slash burning and overgrazing, that create public hazards or nuisances.

C. Acquisition

1. While it is recognized that cooperation and public regulation in the management of private forest lands will go a long way towards meeting the problem, the increase in public ownership by acquisition through boundary extensions and purchase will prove to be the only permanent solution in many cases. Public acquisition should be:

   (1) Local - city and county, forests and recreation centers.

   (2) State - State forests and recreation centers.

   (3) Federal - For National Forest purposes.

2. The entire acquisition scheme should be carefully studied and worked out jointly on a long time basis, wherein the part of each participating agency will be defined. Federal purchases should be largely confined to areas presenting the most critical long time forest management problems, involving all resources.

3. To the fullest extent possible any Federal acquisition program should recognize local participation and cooperation directed towards the solution of specific problems.

4. Acquisition should always precede any expenditures for forest rehabilitation work, except that necessary for purely demonstration program.

5. Acquisition work should proceed on a steady annual basis and price schedules should be reasonable, so that owners would be

encouraged to sell before exploiting the resources to the utmost.

6. Satisfactory State legislation to authorize purchase of privately owned forest land for addition to National Forests.

7. The ultimate total purchase goal in private forest lands of the Region should be about:

Arizona	-	
New Mexico	2,000,000	acres
Colorado	1,415,000	"
Wyoming	260,000	"
South Dakota	445,000	"
Utah	800,000	"
Nevada	300,000	"

TEXT FOR BASIC TIMBER STATISTICS

SOUTH ROCKY MOUNTAIN REGION

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(Comprised of Colorado, Wyoming, Utah, Nevada, Arizona, New Mexico, and west portion of South Dakota and Nebraska.)

Basis

The basis for the preceding series of tables is the Copeland report, as modified by cutting during the past 7½ years, changes due to transfer from private to public ownership, and the changes required due to the availability of better data collected during the past several years.

Table 1 - Volume of Old Growth Timber Available Under Present Conditions

Data compiled for each State in the South Rocky Mountain Region shows a total of 66 billion feet lumber tally available under present conditions.

Increased mileage of publicly built and maintained roads, improvement in truck units, and truck transportation in general have changed the picture as to availability of timber. Smaller volumes per acre can be profitably cut. The development in the small, highly portable, gas-powered mill easily set up and quickly moved has in parts of the region made considerable changes in availability and has simplified the logging problem. Quality of timber, an important item to the large mill, is much less important to the small mill with its limited overhead and simplified working conditions, thus bringing in lower quality timber in the available class.

2. - Difficulties in Marketing Certain Species

All species in the South Rocky Mountain Region are moved commercially - some with more difficulty than others. Species meeting resistance in saw timber sales include the true firs (white and alpine). In certain localities spruce is hard to market, while in other localities spruce is in demand.

In lodgepole pine tie sales alpine fir is not merchantable.

In general, the lack of market for the above species will have little

effect on future forestry practice except in limited localities. On private lands where inferior species are present, their undesirability serves to leave the lands cut over, in improved condition, since these inferior stands will maintain forest conditions and act as partial watershed cover.

3. - Proportion of Cordwood Volume in Thrifty Trees

It is estimated that in the South Rocky Mountain Region about 25 per cent of the cordwood volume is in the form of thrifty trees below saw timber size and suitable for growing stock.

4. - No discussion.

5. - Regional Situation Relative to Supply and Demand of Pulpwood Species

There is no utilization of the pulping species shown in table 5 for pulpwood at the present time, and general possibilities for this type of utilization are considered remote.

It is estimated that 50 per cent of the volume shown in table 5 consists of material of saw timber size.

6. - Correlation of Class of Ownership.

There is no direct correlation between public and private ownership as far as volume, quality, and economic accessibility are concerned. In general, National Forest timber is of just as good quality, volume per acre is just as heavy, and it is just as accessible as the saw timber in private ownership.

From the standpoint of commercial saw timber the Federal Government controls the situation within the States of Colorado, South Dakota, Wyoming, Nevada, Utah, and Arizona. In New Mexico private ownership controls 1/5 of the virgin commercial timber. This 1/5 plays an important part since three of the largest operations in that State supplying about 1/2 the cut, are

largely or entirely dependent on this private timber. This ownership will exert considerable influence during the next 10 years, by which time the private timber will be largely exhausted and the entire demand for stumpage fall on the public forests.

7. - Present Forest Drain

Data compiled in Washington and accepted by Regions 2, 4 and 3 without change.

8. - No discussion.

9. - Relation Between Current Growth and Drain

In those portions of the South Rocky Mountain Region where mixed species prevail, a portion of which does not find a ready market, there is a tendency for an increase in the less valuable species.

On publicly owned lands in general, logging operations leave a good quality and quantity of growing stock of the desirable species.

On privately owned lands, the opposite is generally true with some notable exceptions. In general, for the South Rocky Mountain Region as a whole, the difference between quality drain and growth is not material.

On account of the type of operation in the Region, consisting for the most part of small mills with a temporary rather than a permanent community, there have been relatively few stranded towns left by cutting out of the supporting timber. A few such cases are found in New Mexico, and a few additional towns partially dependent on a private timber supply will in the future of necessity suffer a loss.

Table 1. - Stand of saw-timber on total commercial forest land area in South Rocky Mountain region, by character of growth and State

(Million feet, B.M., lumber tally)

State	Total	Softwoods			Hardwoods		
		Total	Old[1] growth	Second growth	Total	Old[1] growth	Second growth
Colorado	48,104	47,397	45,322	2,075	707	490	217
Wyoming	32,587	32,584	29,114	3,470	3	2	1
South Dakota[2]	3,145	3,145	1,954	1,191	0	0	0
Utah	7,791	7,791	6,768	1,023	0	0	0
Nevada[3]	778	778	727	51	0	0	0
Arizona	19,492	19,492	18,295	1,197	0	0	0
New Mexico	13,823	13,823	12,631	1,192	0	0	0
All States	125,720	125,010	114,811	10,199	710	492	218

1 - Includes saw-timber volume only on land classed as saw-timber area. Stands of saw-timber on forest land areas in South Rocky Mountain region classed as alpine and too scattered to log are not included in commercial stand tables.
2 - Includes Custer, Fall River, Lawrence, Pennington, and Meade Counties only.
3 - Does not include forest land in Nevada reported by California region.

Volume of softwoods and hardwoods included in the above table on land not classed as saw-timber area

Total	Softwoods			Hardwoods		
	Total	Too scattered to log	Alpine	Total	Too scattered to log	Alpine
4,402[1]	4,402	2,017	2,385	0	0	0

1 - All in Arizona and new Mexico - none so included for Colorado, Wyoming, South Dakota, Utah, and Nevada.

Table 2. - Stand of saw-timber on total commercial forest land area in South Rocky Mountain region, by species and States

(Million feet, B.M., lumber tally)

Kind of wood (Species)	Total	Colorado	Wyoming	South Dakota[1]	Utah	Nevada[2]	Arizona	New Mexico
Western hardwoods	710	707	3	0	0	0	0	0
Total	710	707	3	0	0	0	0	0
Softwoods								
Douglas fir	12,041	3,642	4,538	0	680	88	933	2,160
Ponderosa Pine	40,956	5,195	2,316	3,092	2,080	264	17,945	10,064
True Fir	8,102	4,133	2,054	0	339	386	368	822
Spruce	36,163	25,896	6,993	53	2,389	23	161	648
Lodgepole Pine	26,577	8,451	15,835	0	2,291	0	0	0
Others	1,171	80	848	0	12	17	85	129
Total	125,010	47,397	32,584	3,145	7,791	778	19,492	13,823
All Species	125,720	48,104	32,587	3,145	7,791	778	19,492	13,823

1 - Includes only Custer, Fall River, Lawrence, Pennington, and Meade Counties.

2 - Does not include forest land in Nevada handled by California region.

Table 2a. - Woodland (Pinon, Juniper, and Live Oak Areas)[1]
(Thousand acres)

State	Total woodland	Commercial woodland	Non-commercial woodland	
			Total	Withdrawn from use
Colorado	3,394	3,364	30	30
Wyoming	70	70	0	0
South Dakota	0	0	0	0
Utah	9,000	8,945	55	55
Nevada[2]	5,000	5,000	0	0
Arizona	14,896	13,896	1,000	1,000
New Mexico	13,864	13,364	500	500
All States	46,224	44,639	1,585	1,585

1 - Owing to the many uses locally of the woodland stands, Table 2a showing area of woodland forest has been prepared. For Utah and Nevada this is a duplication of a portion of the data given in Table 2.

2 - All of State except that handled by California adjacent to the California-Nevada boundary.

Table 3. - Stand of cordwood (excluding bark)[1] on saw-timber, cordwood, and restocking areas of the South Rocky Mountain region, by States

(Thousand cords)

State	Total	Saw-timber areas			Cordwood areas			Restocking areas		
		Total	Soft-wood	Hard-wood	Total	Soft-wood	Hard-wood	Total	Soft-wood	Hard-wood
Colorado	81,013	49,106	47,599	1,507	9,372	5,891	3,481	22,535	7,914	14,621
Wyoming	68,097	52,007	52,000	7	2,928	2,923	5	13,162	9,874	3,288
South Dakota[2]	5,656	3,323	3,323	0	149	149	0	2,184	1,947	237
Utah	18,595	11,233	11,233	0	7,362	1,148	6,214[4]	0	0	0
Nevada[3]	1,771	633	633	0	1,138	449	689[4]	0	0	0
Arizona	11,555	10,175	10,175	0	0	0	0	1,380	1,380	0
New Mexico	11,600	9,990	9,990	0	0	0	0	1,610	1,610	0
All States	198,287	136,467	134,953	1,514	20,949	10,560	10,389	40,871	22,725	18,146

1 - Includes all trees below saw-timber size, and tops and limbs (only tops in softwoods) of saw-timber trees.

2 - Includes Custer, Fall River, Lawrence, Pennington, and Meade Counties only.

3 - Does not include forest land in Nevada handled by California region.

4 - Aspen.

Table 3a. - Stand of cordwood on pinon-juniper and oak commercial woodland areas

(Supplemental to Table #3)

State	Volume in Thousand Cords
Colorado	13,456
Wyoming	280
South Dakota	0
Utah	17,900
Nevada[1]	10,000
Arizona	29,900
New Mexico	33,500
Total	105,036

1 - Does not include forest land in Nevada handled by California region.

Table 4. - Total stand (cubic feet) in South Rocky Mountain region, on total commercial forest land area, by inside bark type of material and States

(Million cubic feet)

State	All material			Saw-timber trees[1]			Cordwood Trees		
	Total	Softwood	Hardwood	Total	Softwood	Hardwood	Total	Softwood	Hardwood
Colorado	18,641	16,635	2,006	13,147	12,954	193	5,494	3,681	1,813
Wyoming	13,699	13,386	313	8,925	8,924	1	4,774	4,462	312
South Dakota[2]	1,251	1,229	22	860	860	0	391	369	22
Utah	2,758	2,199	559	1,277	1,277	0	1,481	922	559
Nevada[3]	265	203	62	120	120	0	145	83	62
Arizona	4,938	4,938	0	4,771	4,771	0	167	167	0
New Mexico	3,835	3,835	0	3,664	3,664	0	171	171	0
All States	45,387	42,425	2,962	32,764	32,570	194	12,623	9,855	2,768

1 - Includes tops and limbs (only tops in softwoods) as well as portion of tree suitable for saw logs.

2 - Includes only Custer, Fall River, Lawrence, Pennington, and Meade Counties.

3 - Does not include forest land in Nevada handled by California region.

Table 5. - Stand of principal kinds of wood now used for pulpwood in South Rocky Mountain region

(Thousand cords)

Kind of Wood	Total Region
Softwoods:	
Spruce and fir	123,719
Hardwoods:	
Cottonwood & Aspen	33,527
All species	157,246

Table 6. - Ownership of stand of saw-timber on total commercial forest land area in South Rocky Mountain region, by States

(Million feet, board measure)

State	Total	Federally owned & managed				State	Private		
		Total	National forest	Indian Reservation	Other	county and municipal	Total	Farm woodland	Industrial and other
Colorado	48,104	45,355	38,879	0	6,476	237	2,512	0	2,512
Wyoming	32,587	30,331	28,161	865	1,305	512	1,744	0	1,744
South Dakota[1]	3,145	2,907	2,900	0	7	15	223	0	223
Utah	7,791	7,474	7,283	10	181	52	265	64	201
Nevada[2]	778	330	228	0	102	0	448	0	448
Arizona	19,492	19,342	13,842	5,500	0	82	68	0	68
New Mexico	13,823	10,229	9,596	608	25	526	3,068	60	3,008
Total	125,720	115,968	100,889	6,983	8,096	1,424	8,328	124	8,204

1 - Includes only Custer, Fall River, Lawrence, Pennington, and Meade Counties.

2 - Does not include forest land in Nevada handled by California region.

Table 8. - Present current annual growth on commercial forest area of the South Rocky Mountain region

	Combined saw-timber and cordwood growth			Saw-timber growth			Cordwood growth		
	Total	Softwood	Hardwood	Total	Softwood	Hardwood	Total	Softwood	Hardwood
	Million cubic feet	Million cubic feet	Million cubic feet	Million feet, B.M. (lumber tally)	Million feet, B.M. (lumber tally)	Million feet, B.M. (lumber tally)	Thousand cords	Thousand cords	Thousand cords
Total for Region	257	196	61	525	516	9	1,582	908	674

Table 1. - Land area of South Rocky Mountain Region, by major classes of land use and States
(Thousand acres)

State	Total	All Forest Land	Crop Lands in Farms	Pasture and Range[1]			Other[2]
				Total	In Farms	Not in Farms	
Colorado	66,341	20,431	8,841	35,809	18,408	17,401	1,260
Wyoming	62,431	8,350	2,140	51,413	25,048	26,365	528
South Dakota[3]	6,590	1,230	816	4,461	2,765	1,696	83
Utah	52,598	24,215	1,706	19,893	3,901	15,992	6,784
Nevada[4]	70,285	8,655	380	55,655	2,955	52,700	5,595
Arizona	72,838	19,629	849	49,157	11,842	37,315	3,203
New Mexico	78,402	20,066	5,319	52,516	26,445	26,071	501
All States	409,485	102,576	20,051	268,904	91,364	177,540	17,954

1 - No forest land, such as farm woodlands, included.

2 - Farmsteads, roads, urban, waste, etc.

3 - Includes Custer, Fall River, Lawrence, Meade, and Pennington Counties only.

4 - All of State except that handled by California.

Table 2. - Forest land areas of South Rocky Mountain region, by broad classes and States
(Thousand acres)

State	Total forest land	Commercial[1] forest land	Non-commercial forest land		
			Total	Withdrawn from Timber use[2]	Chiefly valuable for purposes[3] other than timber
Colorado	20,431	16,722	3,709	315	3,394
Wyoming	8,350	6,351	1,999	1,636	363
South Dakota[4]	1,230	1,199	31	31	0
Utah	24,215	4,434	19,781	55	19,726
Nevada[5]	8,655	558	8,097	0	8,097
Arizona	19,629	3,607	16,022	340	15,682
New Mexico	20,066	4,018	16,048	700	15,348
All States	102,576	36,889	65,687	3,077	62,610

1 - Land bearing or capable of producing timber of commercial quantity and quality and economically available (now or prospectively) for commercial use and not withdrawn from commercial use.

2 - Includes open-grown pinon-juniper lands in the West, chaparral in southern California, remote and inaccessible alpine ranges, and other areas which because of low productivity or extreme inaccessibility appear to be permanently out of commercial timber-producing class.

3 - Commercially valuable forest lands in the form of parks, preserves, etc., withdrawn from commercial use.

4 - Includes Custer, Fall River, Lawrence, Meade, and Pennington Counties only.

5 - All of State except that handled by California.

Table 3. - Commercial forest land areas of South Rocky Mountain Region, by character of growth and State

State	Total	Saw-timber areas			Cordwood area	Fair to[1] satisfactory restocking areas	Poor to[1] non-restocking areas
		Total	Old Growth	Second Growth			
Colorado	15,561[2]	8,133	6,310	1,823	7,428	6,274	1,855[3]
Wyoming	6,282[2]	4,274	3,523	751	2,008	2,235	457[3]
South Dakota[4]	1,199	678	400	278	521	741	39
Utah	4,434	2,432	1,863	569	1,174	406	422
Nevada[5]	558	201	178	23	274	31	52
Arizona	3,607	3,607	2,905	702	0	624	78
New Mexico	4,018	4,018	2,854	1,164	0	901	263
All States	35,659	23,343	18,033	5,310	11,402	11,212	3,166

1 - These areas included in second growth saw-timber and cordwood areas. (Not for Utah + Nevada) EL

2 - Deforested land capable of producing timber not included. This amounts to 1,161,000 acres in Colorado and 69,000 acres in Wyoming.

3 - Includes 1,161,000 acres deforested in Colorado and 69,000 acres in Wyoming.

4 - Includes Custer, Fall River, Lawrence, Meade, and Pennington Counties only.

5 - All of State except that handled by California.

Table 4. - Ownership of commercial forest land areas
Thousand acres - all areas

State	All Areas	Federally owned or managed				State		Private		
		Total	National forest	Indian reservation	Other	County and municipal	Total	Industrial & other	Farm woodland
Colorado	16,722	11,564	9,443	184	1,937	180	4,978	3,316	1,662
Wyoming	6,351	5,089	4,548	200	341	120	1,142	590	552
South Dakota (5 counties only)	1,199	929	927	0	2	0	270	20	250
Arizona	3,607	3,545	2,330	1,215	0	28	34	34	0
New Mexico	4,018	2,859	2,421	428	10	119	1,040	1,000	40
Utah	4,434	3,770	3,426	25	319	59	605	428	177
Nevada[1]	558	356	302	0	54	2	200	200	0
Totals	36,889	28,112	23,397	2,052	2,663	508	8,269	5,588	2,681

Saw-timber areas (old growth)

State	All Areas	Federally owned or managed				State		Private		
		Total	National forest	Indian reservation	Other	County and municipal	Total	Industrial & other	Farm woodland
Colorado	6,310	5,773	3,899	0	1,874	57	480	480	0
Wyoming	3,523	3,324	2,930	180	214	85	114	114	0
South Dakota	379	348	348	0	0	0	31	5	26
Arizona	2,905	2,892	1,737	1,155	0	2	11	11	0
New Mexico	2,854	2,305	2,008	290	7	109	440	440	0
Utah	2,432	2,324	2,238	25	61	28	80	46	34
Nevada[1]	201	104	60	0	44	0	97	97	0
Totals	18,604	17,070	13,220	1,650	2,200	281	1,253	1,193	60

Cordwood areas (old growth)

State	All Areas	Federally owned or managed				State		Private		
		Total	National forest	Indian reservation	Other	County and municipal	Total	Industrial & other	Farm woodland
Colorado	2,283	1,594	1,359	172	63	18	671	671	0
Wyoming	136	116	105	0	11	2	18	18	0
South Dakota	44	2	1	0	1	0	42	2	40
Arizona	0	0	0	0	0	0	0	0	0
New Mexico	0	0	0	0	0	0	0	0	0
Utah	1,174	945	713	0	232	17	212	111	101
Nevada[1]	274	173	163	0	10	1	100	100	0
Totals	3,911	2,830	2,341	172	317	38	1,043	902	141

1 - All of State except that handled by California.

Table 4. - Ownership of commercial forest land areas (Continued)

Fair to satisfactory restocking areas

State	All areas	Federally owned or managed				State county and municipal	Private		
		Total	National forest	Indian reservation	Other		Total	Industrial & other	Farm woodland
Colorado	6,274	3,108	3,099	9	0	85	3,081	1,585	1,496
Wyoming	2,235	1,354	1,245	17	92	30	851	382	469
South Dakota	720	536	535	0	1	0	184	13	171
Arizona	624	588	533	55	0	23	13	13	0
New Mexico	901	453	343	108	2	8	440	405	35
Utah	406	322	309	0	13	2	82	41	41
Nevada[1]	31	31	31	0	0	0	0	0	0
Totals	11,191	6,392	6,095	189	108	148	4,651	2,439	2,212

Poor to non-restocking areas

Colorado	1,855	1,089	1,086	3	0	20	746	580	166
Wyoming	457	295	268	3	24	3	159	76	83
South Dakota	56	43	43	0	0	0	13	0	13
Arizona	78	65	60	5	0	3	10	10	0
New Mexico	263	101	70	30	1	2	160	155	5
Utah	422	179	166	0	13	12	231	230	1
Nevada[1]	52	48	48	0	0	1	3	3	0
Totals	3,183	1,820	1,741	41	38	41	1,322	1,054	268

1 - All of State except that handled by California.